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## The Commissioner of Patents and Trademarks

*Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.*

*Therefore, this*

### United States Patent

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*If this application was filed prior to June 8, 1995, the term of this patent is the longer of seventeen years from the date of grant of this patent or twenty years from the earliest effective U.S. filing date of the application, subject to any statutory extension.*

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*Bence Lehman*

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*Pandra Motta*  
Attest

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JC598 U.S. PTO  
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US005,839,514A

# United States Patent [19] Gipson

[11] Patent Number: 5,839,514

[45] Date of Patent: Nov. 24, 1998

[54] METHOD AND APPARATUS FOR  
INJECTION OF TUBING INTO WELLS

[75] Inventor: Thomas C. Gipson, Cisco, Tex.

[73] Assignee: Fleet Cementers, Inc., Cisco, Tex.

[21] Appl. No.: 862,745

[22] Filed: May 23, 1997

[51] Int. Cl.<sup>6</sup> ..... E21B 19/22[52] U.S. Cl. .... 166/384; 166/77.2; 166/85.5;  
242/399.1; 242/596.3; 254/288; 254/332;  
254/333[58] Field of Search ..... 166/77.2, 77.1,  
166/85.5, 384, 385; 242/399.1, 399.2, 596.3;  
254/281, 288, 326, 332, 333

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Primary Examiner—George Suchfield

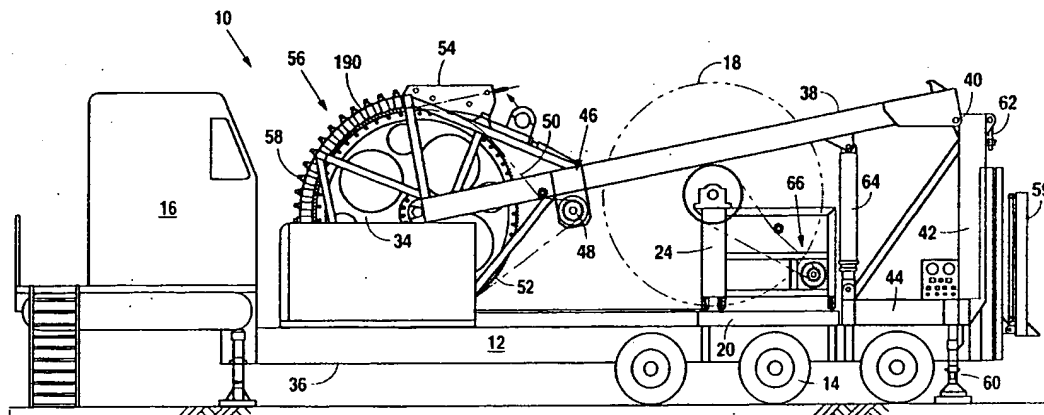
Attorney, Agent, or Firm—Miller, Sisson, Chapman &amp; Nash, P.C.

[57]

## ABSTRACT

An improved apparatus and method for injecting and retrieving a length of coiled tubing and storing the tubing on a storage spool. An injector reel is pivotally mounted on a frame such that coiled tubing may be angularly injected to shallow, horizontal wells. A hold-down assembly is provided to individually adjust the pressure applied to the coiled tubing as it is injected into or retrieved from a well. The positioning of the injector reel and the storage spool in the injecting mode ensures a greater degree of wrapping of the coiled tubing around the injector reel to improve the control of the injection and retraction of the tubing. A vertically and horizontally adjustable storage spool cradle enables the operator to vary the width and diameter of the storage spools used in the apparatus.

11 Claims, 8 Drawing Sheets



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